

stances may have on changes in bone density. These findings could play a significant role in the development of early intervention strategies for women with osteoporosis. In addition, clinical trials are beginning at NIEHS to determine if pathologic conditions that modify endogenous estrogen levels and disrupt a normal pubertal period (such as precocious puberty or Turner syndrome) might also influence bone density at later stages of life. The health and monetary costs of osteoporosis to our society are already enormous, estimated at \$7–10 billion annually and affecting approximately 24 million Americans, the majority of whom are women. An estimated 50% of women over age 45 and 90% of women over age 75 have osteoporosis. As the average age of our society increases, the number of people afflicted with this disease will rise, resulting in increased health care costs. Expanded research in this area will extend our understanding from basic research studies to clinical investigations and affected human populations.

### NIEHS to Play Unique Role in Women's Health Research Effort

Human disease is largely the product of the interaction between two factors, genetics and the environment, throughout the life span. Any large-scale research agenda pertaining to human health must therefore consider the entire life span, and it is clear that women's health is worse over the course of a life time than men's. It is equally apparent that the environmental component of this interaction has been somewhat neglected by the biomedical research community. A major research initiative addressing the environment and women's health is therefore imperative. The proposed initiative thus focuses on hormonal carcinogenesis and endocrine toxicology, with special emphasis on the genetic and epigenetic molecular mechanisms that underlie these phenomena.

With NIEHS's background, knowledge, and ongoing research programs in women's health and insofar as a wide range of environmental agents possess hormonal potential and a significant percentage of women's health problems appear related to dysfunction in hormonal pathways, this approach is likely to succeed. Inclusion of the NIEHS extramural (grants) component in the above areas will undoubtedly facilitate research progress. The diverse strengths of extramurally funded research programs allow for important health problems with an environmental component, such as cardiovascular disease, to be addressed. Such a dual effort of the NIEHS intramural and extramural research programs will allow a comprehensive,

multidisciplinary, and inclusive approach to this problem.

Contributing to this report on women's health were Jeff Boyd, Laboratory of Molecular Carcinogenesis; J. Carl Barrett, Environmental Carcinogenesis Program; Terri Damstra, Program Coordination; and John McLachlan, Office of the Director.

### Minority Health Research

Treatment of lead toxicity, environmental justice, and environmental health sciences centers are among the minority health issues that will be addressed through an agreement between the National Institutes of Health's Office of Research on Minority Health (ORMH), and NIEHS. A memorandum of agreement between the two NIH organizations provides NIEHS with \$5 million a year through 1997 to address minority health concerns related to environmental health.

John Ruffin, director of ORMH, and Kenneth Olden, director of NIEHS, signed the agreement March 29 at NIEHS in Research Triangle Park, North Carolina. The ORMH was established in 1990 to strengthen the efforts of NIH to improve the health status of minority Americans through biomedical research and to increase the participation of minorities in biomedical research.

Funds provided through the agreement will be apportioned between research programs relating to minority health and planning and research on issues of environmental justice. Environmental justice addresses pollution and environmental health risks and their distribution across socioeconomic

classes and racial groups. Four major efforts under the agreement are:

- Blood levels in children. Three to four million children in the United States have elevated blood lead levels. There are two possible interventions to reduce the problem. One is to reduce exposure including lead abatement in homes, but this will require years to accomplish. A more immediate approach is to treat children with a drug (chelating agent) that will remove lead from the body. Succimer is a new drug that holds promise but has not been adequately tested clinically for this purpose; it is the first newly approved drug of its type (chelating agent) since 1950. NIEHS will support a clinical trial to establish the effectiveness of succimer. It is orally administered, appears to be relatively safe, and does not cause as much loss of necessary elements such as zinc and iron as other chelators. Contracts to conduct the trials will be awarded in the next several months.
- Lead in pregnant women. Research will be conducted to learn to what extent the release of lead stored in bone is increased during pregnancy. This is an important question in understanding how the developing fetus may be exposed through lead exposure of the mother before pregnancy. The research will focus on women from Eastern Europe who were heavily exposed to lead who have and then migrated to Australia. This population provides a unique opportunity for this kind of study because of the recognizable differences in the nature of the lead iso-



**Focus on minority health.** John Ruffin (left), director of the Office of Research on Minority Health, and Kenneth Olden, director of NIEHS, sign a five-year agreement.